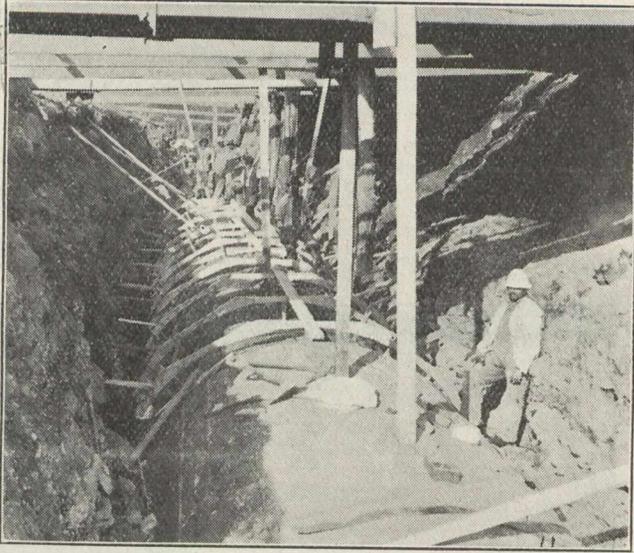


the aqueduct in condition to supply the wants of the rapidly increasing population without necessitating the resort to the expensive use of steam. All of these schemes had in view one of two objects; the increase of water power or the substitution of a gravity supply. Montreal is not advantageously situated to make use of this latter scheme. Built upon an island, bordered on one side by the St. Lawrence River,—



Looking East from Sta. 161.

whose width precludes any idea of viaduct or syphon to bring water supply on this side,—on the other side it is bordered by a branch of the Ottawa River and adjacent to another island, formed by the same river dividing itself into two branches, not so wide as the St. Lawrence River, but of sufficient width to make the bringing across of a gravity aqueduct very expensive.

The first scheme was to find north of the city a water supply taken a sufficient altitude (that is, more than 425 feet above the St. Lawrence), adequate to the present and future wants of the city. The ridge of the Laurentian Mountains, whose first summit is situated more than 30 miles from Montreal, was the only spot where such a water supply could be found. Surveys and levels were made, and established the fact that a water supply could be taken from Lake Ouareau, situated at an altitude of 450 feet and a distance of about 60 miles from Montreal, but the estimated costs (nearly 25 millions) of such an undertaking prevented the further study of it. Consideration of the gravity plan was consequently superseded by the study of a sufficient hydraulic power system. While on this question I would like to add that it is my opinion that the scheme of carrying water from the Laurentian Lakes would result in difficulties other than the supposed heavy cost. The water would be sure to be actually contaminated in a country where on the watershed supplying the lakes are scattered villages, farms, mills, forests, where timber cutting on a large scale is constantly going on, employing a large number of men and horses; and numbers of the creeks run nearly dry in summer and would only supply at the chosen locality impure waters.

At the time this project was being considered the causes of pollution which I have just spoken of were almost nil, or in any case it would have been possible for the City of Montreal at comparatively small cost, to have secured control of the whole water shed and thus stop all causes of pollution; to-day the expropriation of all this territory would make it seem unreasonable to consider the project, unless no other

means existed of furnishing Montreal with a water supply under conditions of price more reasonable.

The legend of the "lucid water of the Laurentides lakes" will therefore have to be laid to one side, because its price would be extravagant or its quality, (leaving aside its quantity), would not certainly be superior to the actual supply. I would remark in passing that the pollution of the Laurentian Lakes is so notorious that Professor Girdwood himself in his testimony before the Royal Commission recently declared that members of his family had contracted typhoid fever during the sojourn in that region from having used water from these lakes.

These and many other considerations were the causes which led to preference being given to the plan of the superintendent then in charge of the water works, Mr. Louis Lesage. This scheme was simply to carry the entrance of the aqueduct 3,000 feet up the river and to make it 130 feet wide at the water surface, 78 feet wide at bottom, and 14 feet deep.

These dimensions would have provided sufficient power to supply 30,000,000 Imperial gallons. In 1877 the construction of works on this plan was begun, the new entrance of the aqueduct was made, and the aqueduct was dug 130 feet wide and 14 feet deep, for 4,800 feet in length, as it stands to-day. The cost of the work and the successive change of the heads of the Department prevented its continuation, and this accounts for the periodical growth of the steam plant, as it stands now, with five pumps (45 million gallons capacity.)

However, the beginning of enlargement had a favorable effect on the water in the aqueduct and the formation of ice,



Looking west from Sta. 202, June 16, 1908. Showing mould in place for purpose of receiving concrete.

in such a way as to better protect the efficiency of the hydraulic pumps.

In 1878, the low level reservoir (McTavish) having become insufficient, it was enlarged so as to bring its capacity to 37,000,000 Imperial gallons. In 1889 the population fed by the high level system had increased so much that a new